Wind energy in multi-technology auctions in Denmark: opportunities and challenges

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Wind energy in multi-technology auctions in Denmark: opportunities and challenges

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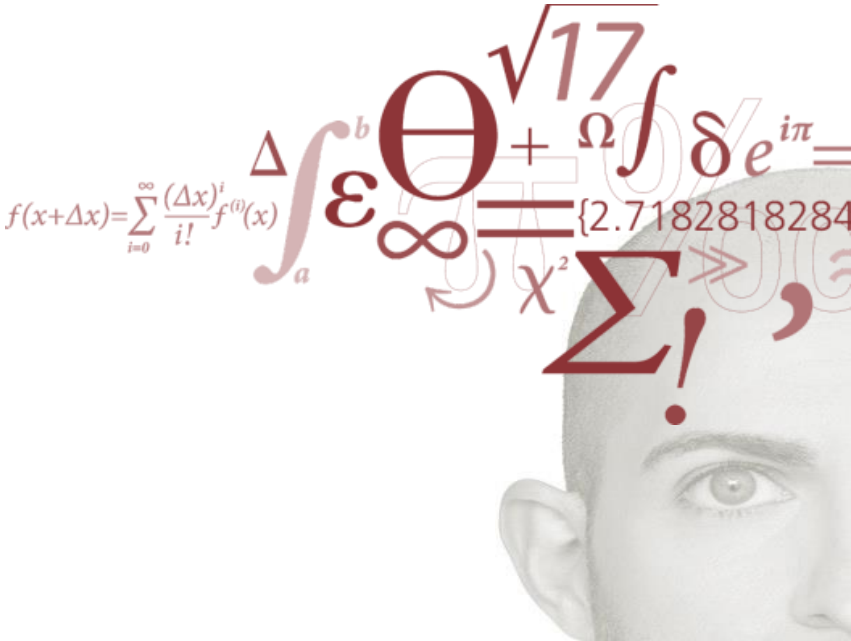


Wind in the new Danish multi-technology auctions

BEFORE	NOW
▪ Fixed premium, capped (in effect: hybrid fixed/sliding)	▪ Fixed premium, no cap
▪ Support duration depending on FLH & swept area (ca. 8-12 years)	▪ 20 years support
▪ 25 øre/kWh, market cap 58 øre/kWh plus balancing compensation	▪ Level to be found through tenders (bid cap 13 øre/kWh)
▪ Total limit on support: none	▪ Total limit on support: DKK 254 mio handed out in 2018

What can wind expect from the new auction scheme?

- Periodic 'windows of opportunity' instead of continuos development
- Deadlines and time schedules for winning projects
- Different financing conditions
- Tough competition from Solar PV

TODAY'S FOCUS

Results of the recent German multi-technology auction

- April 2018, **PV and onshore wind**
- Winning: 210 MW in 32 projects – **all PV**
- **Average sliding-premium of 4,67 ct/kWh (ca. 34,8 øre/kWh);** winning range: 3.96 - 5.76

- **Bids:** 36 PV / 18 wind projects
  Volume weighted average bids:
  PV 4.82 ct/kWh / Wind 7.23 ct/kWh

- **Bid ranges for comparison:**
  PV only auction (Feb 2018): 3.86 - 4.59 ct/kWh
  [Wind only auction (Feb 2018): 3.80 - 5.28 ct/kWh*]
  Wind only auction (May 2018): 4.30 - 6.28 ct/kWh
  Wind only auction (Aug 2018): 4.00 - 6.30 ct/kWh

Wind has no chance against PV in Germany's mixed wind-solar auction

32 to 0 for solar PV – that's the result of the first technology-neutral tender. The average final price of €0.0467 per kWh was slightly above the solar-only-tender held in February.

APRIL 12, 2018 SANDRA ENKHARDT

MARKETS | UTILITY-SCALE PV | GERMANY

Germany will hold another 200 MW tender for PV and onshore wind power on November 1.

*still under the old 'community project' rules

https://www.pv-magazine.com/2018/04/12/wind-has-no-chance-against-pv-in-germanys-mixed-wind-solar-auction/

Some observations

- Was wind not ‘trying very hard’ ?

  - Bid ranges in wind-only auctions comparable to PV
  - Ample opportunity with wind-only auctions in May and August

  → *these were undersubscribed and featured increasing winning prices*

- Was uncertainty too high ?

  - New permit requirements for community projects
  - No reference yield rule in the multi-technology tender

  → *Maybe, projects were just not ready to bid aggressively yet*

Cross-border auction on PV between Germany and Denmark

GERMAN AUCTION

- In 2016 for 50 MW, all open
- 17 bids for 154 MW from Denmark
- 26 bids for 143 MW from Germany

- Sliding premium for 20 years on top of the local (!) market price

- Winning bids all in Denmark, all at 5.38 ct/kWh al (40 øre/kWh)
  (lowest winning PV bid in Germany had been 7.25 ct/kWh at that time)

DANISH AUCTION

- In 2016 for 20 MW, 2.4 MW open
- 36 bids for 79.45 MW from Denmark
- 0 bids from Germany

- Similar conditions to the now open multi-technology tender (fixed premium for 20 years)

- Winning bids: 12.89 øre/kWh

Some observations

- Danish PV was at least as competitive as German PV
  - Was German PV not 'trying very hard' ?

    → *Ample opportunity in GER vs. no long-term schedule in DK*

- If PV dominates in German multi-technology auction, and Danish PV dominates in cross-border auction, what does that mean for the strength of PV in Denmark?
  - Note: Fixed premiums might be another advantage for PV in the short term

  → *How much can be attributed to competitive prices and how much to strategy?*

Discussion input 1:
Technology cost of wind and PV are overlapping – GOOD!

- Competition is crucial when undertaking auctions – it is actually (almost) the whole point of it.

Homogenous bidders:

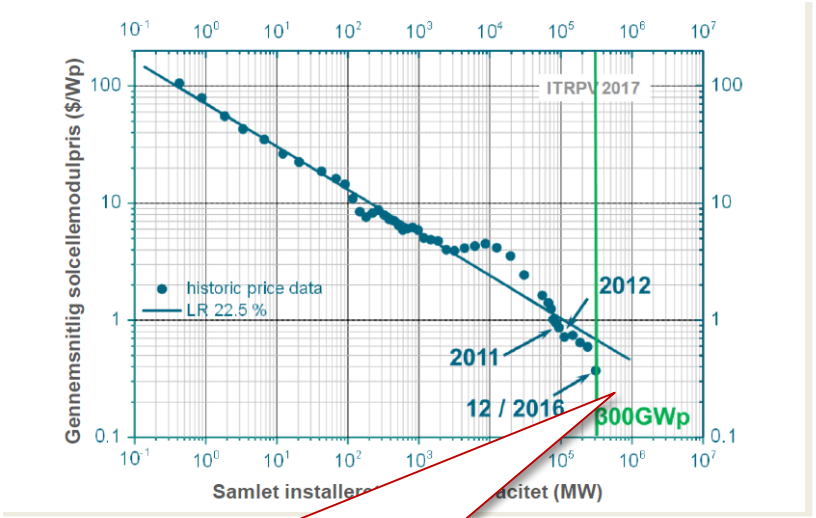
The bids of group A and group B overlap and are at similar levels.

Heterogeneous bidders:

The bids of group A and group B are very much divergent.

Discussion input 2:
The comparative advantage between PV and wind is in flux

We expect higher achieved prices for wind as compared to PV in the future...



...but price decreases of solar PV happen currently faster than of wind.

Open questions for debate

- Does it actually matter what the auction is like and who should be competing in it? The volumes are quite small anyways…
- Can we expect true competition between technologies or is it just a matter of compliance?
- Which technology will become dominant in the next auction? The future?
- What can wind do about it?

THANK YOU!

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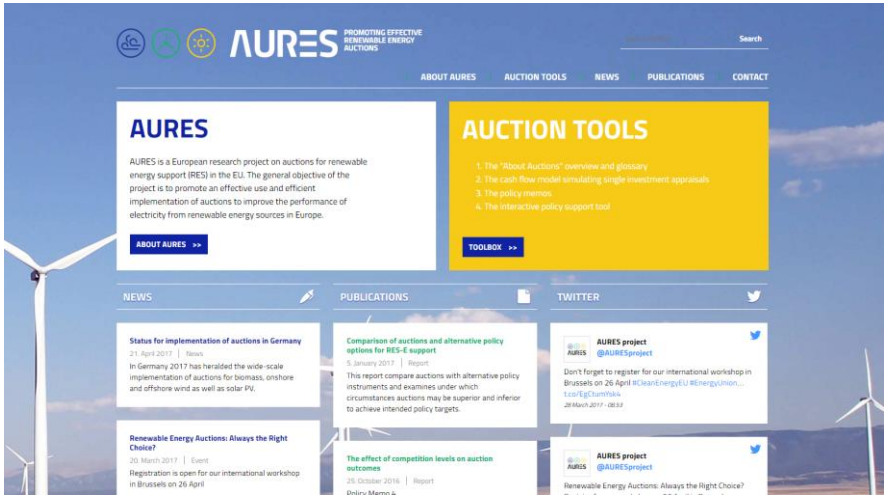
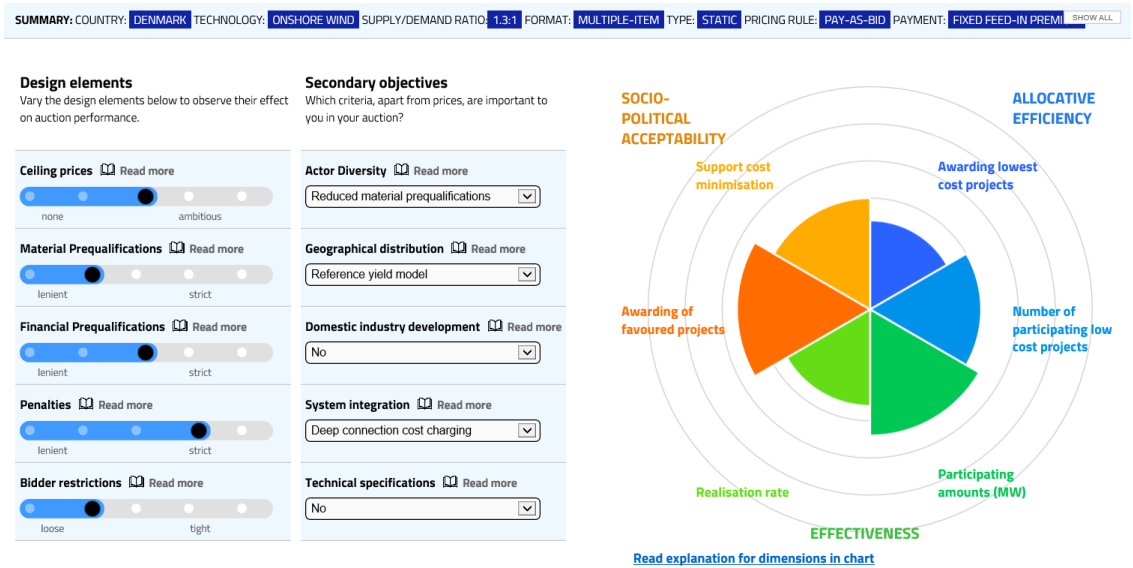
www.auresproject.eu



Policy support toolbox

Online tool for RES auction design: www.auresproejct.eu/auctiondesigner

AURES Auction Designer



More results and concrete recommendations can be found here…

Framing and conceptual aspects

Overview of Design Elements for RES-E Auctions

Assessment Criteria for RES-E Auctions

Links Between Assessment of Design Elements

Auction design aspects

Assessment of Auction Types Suitable for RES-E

Winner's Curse in Discriminatory and Uniform Price Auctions

Model-based analysis

Cash flow analysis of past RES auctions in Germany, Spain and Denmark

Modelling of Renewable Energy Auctions: Game theoretic & Energy system Modelling

Empirical aspects of auctions

Synthesis report

EU country studies: Denmark, France, Germany, Ireland, Italy, Netherlands, Portugal, UK

Non-EU country studies: Brazil, China, South Africa, USA (California), Peru, Mexico, Chile, Zambia

Future implementations

Introduction to the Case Studies

EU country studies: Croatia, Poland, Slovakia, Spain, Netherlands/Denmark

Policy cooperation cases: *on request*

Auctions and alternatives

Identification of alternative policy options to auctions

Comparison of auctions and alternative policy options

Hybrids and Transitions

Policy support toolbox

AURES Auction Designer

Cash Flow Model

AURES Auction Academy

Recommendations

Recommendations on the role of auctions in REDII

Policy Memo 1: Secondary objectives in auctions

Policy Memo 2: Pre-qualifications and penalties

Policy Memo 3: Award types and auction outcomes

Policy Memo 4: Competition in auctions

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